

NATIONAL OCEAN POLLUTION POLICY BOARD

**REVIEW OF FY 1991
AGENCY REQUESTS FOR APPROPRIATIONS**

**TO SUPPORT MARINE POLLUTION RESEARCH,
DEVELOPMENT AND MONITORING PROGRAMS**

April 1990

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Prepared by the
National Ocean Pollution Program Office
National Oceanic and Atmospheric Administration

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PREFACE

The National Ocean Pollution Planning Act (P.L. 95-273; NOPPA), as amended by the Omnibus Budget Reconciliation Act of 1986 (P.L. 99-272; enacted April 7, 1986), called for the National Oceanic and Atmospheric Administration (NOAA) to establish and support an interagency National Ocean Pollution Policy Board consisting of representatives from all Federal agencies that conduct or support marine pollution research, development or monitoring programs. The duties of the Board include annual review of requests for appropriations to support marine pollution research. Each agency in the Federal Plan for Ocean Pollution Research, Development, and Monitoring is required under Section 3A of NOPPA to prepare and submit to the Policy Board a summary of its annual requests for appropriations to support ocean pollution research, development, and monitoring programs. The requests for appropriations are reviewed by the Policy Board which subsequently submits a report to the Office of Management and Budget (OMB) and the Congress concerning these budget requests. This report complies with the legislative requirement for the Board to conduct a review of FY 1991 marine pollution research, development, and monitoring budgets and to submit a report on the budget review to OMB and the Congress. Under NOPPA, OMB is to review the requests for appropriations as an integrated, coherent, multiagency request and is to take into account the review of the Board.

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1. INTRODUCTION

The National Ocean Pollution Planning Act of 1978 (NOPPA) (P.L. 95-273, as amended) requires that the interagency National Ocean Pollution Policy Board prepare and submit to the Office of Management and Budget (OMB) and the Congress a report on budget requests for the National Marine Pollution Program. The national Marine Pollution Program is the composite of all programs related to marine pollution research, development, and monitoring activities supported or conducted by Federal departments or agencies. The primary purpose of NOPPA was to establish effective coordination of marine pollution research, development, and monitoring activities throughout the Federal Government and to assure that Federal programs address national needs and problems. Marine pollution-related programs are funded by eleven separate Federal departments and independent agencies which support or conduct about 500 projects in 44 individual programs. The budget review process for the National Marine Pollution Program is intended to supplement the established procedure of submitting individual agency requests through OMB and to provide a different perspective to OMB and the Congress concerning marine pollution research budget proposals. Under NOPPA, OMB is to "review the request for appropriations as an integrated, coherent, and multiagency request, taking into account the review by the Board of those requests..."

NOPPA requires that the annual budget review analysis include requests for appropriations to carry out activities under the Federal Plan for Ocean Pollution Research, Development, and Monitoring. In many cases, the marine pollution-related projects within the agencies and departments are integral components of larger programs which may not have marine pollution studies as their primary focus. For the purpose of this budget analysis, each agency program has been characterized as "directly related to marine pollution" or "indirectly related to marine pollution" using the guidelines presented in Table 1. This report focuses primarily on the budgets of "direct" programs from FY 1987 through FY 1991. FY 1987 through FY 1990 budgets are reported here as estimates of actual

expenditures. The FY 1991 budgets reported in this document represent estimates of funding levels that would result for marine pollution research, development and monitoring programs under the President's budget submitted to Congress on January 29, 1990.

This report contains four sections:

1. Introduction
2. Overview of Funding Patterns
3. Major Changes Proposed in the FY 1991 Presidential Budget
4. Consistency of the Appropriations Requests with National Marine Pollution Priorities.

The section on "Overview of Funding Patterns" considers relative levels of funding among agencies and time trends in total funding. The third section examines the major changes proposed in funding for the different programs directly related to marine pollution. The nature of, and reasons for, these changes are presented in this section. The final section discusses the overall budget request as compared to national priorities for marine pollution research, development, and monitoring.

Table 1. Guidelines to Distinguish Between Direct and Indirect Marine Pollution Programs

Components of the National Ocean Pollution Research, Development and Monitoring Program may be directly or indirectly related to marine pollution. The following guidelines are provided to assist in distinguishing between these two types of programs. The guidelines are to be applied at the program level. They are based on the mandates and objectives of the program rather than on the specific research or monitoring projects in the program.

- o Direct Programs. Programs should be considered as directly related to marine pollution if either or both of the following criteria are met:
 - (1) The legislative mandate or regulatory requirement for the program is substantially based on concern over the environmental effects of a polluting activity. Polluting activities may include, but are not limited to, the following:
 - marine waste disposal
 - marine mining
 - marine energy development
 - marine transportation
 - fishing activities
 - accidental discharges
 - causes of nonpoint source pollution in coastal areas (e.g., farming, silviculture, urban/suburban development), or
 - alteration of coastal, Great Lakes, or other marine habitats.
 - (2) The primary objective of the program is to provide information or learn more about marine pollution phenomena in one of the following areas:
 - effects of pollutants on specific marine organisms;
 - significance of marine pollution to human health;
 - input rates, sources, transport, fates, and transformations of pollutants;
 - ambient concentrations of pollutants in water, sediment, or tissues of marine organisms;
 - overall status of marine ecosystems and organisms with respect to pollution effects.
- o Indirect Programs. Programs should be considered as indirectly related to marine pollution if they fall within the National Ocean Pollution Research, Development, and Monitoring Program and do not meet either of the criteria for "direct" relationship. In general the objective of these programs will be:
 - to develop biological, chemical, or physical characterizations of marine systems;
 - to develop instrumentation, analytical techniques or other technologies that would have applications independent of those related to marine pollution;
 - to provide general logistical support; or
 - to promote the effective management of a living marine resource.

2. OVERVIEW OF FUNDING PATTERNS

The Presidential budget for research, development, and monitoring programs directly related to marine pollution totals \$145.6 million in FY 1991. In addition, approximately \$11.7 million is requested to support research, development, and monitoring efforts that were reported as indirectly related to marine pollution.¹ This budget review focuses primarily on programs directly related to marine pollution. This section of the budget review presents information on relative funding levels requested by the agencies and time trends in funding for the total Federal program.

¹ See Tables 2 and 3 for budget summaries as well as Table 1 for the definition of "direct" and "indirect" programs.

TABLE 2. DIRECT PROGRAMS

03/05/90

FUNDING SUMMARY FOR THE NATIONAL OCEAN POLLUTION RESEARCH, DEVELOPMENT AND MONITORING PROGRAM
PROGRAMS DIRECTLY RELATED TO MARINE POLLUTION
FISCAL YEARS 1987-1991

	Funding in Thousands of Dollars				
	FY87 Estimate -----	FY88 Estimate -----	FY89 Estimate -----	FY90 Estimate -----	FY91 Presidential -----
Council on Environmental Quality					
Office of Environmental Quality					
Environmental Data and Monitoring Program	9	9	5	1	1
-- Total -- Office of Environmental Quality	9	9	5	1	1
U.S. Department of Agriculture					
U.S.D.A. Marine Pollution Studies					
Nonpoint Source Contaminants Program	2,465	2,384	2,592	2,554	2,554
Habitat Modifications Program	875	873	897	912	912
Point Source Contaminants Program	37	4	4	4	4
-- Total -- U.S.D.A. Marine Pollution Studies	3,377	3,261	3,493	3,470	3,470
U.S. Department of Commerce					
National Oceanic and Atmospheric Administration					
Coastal and Estuaries Assessment Program	5,441	5,701	5,398	5,465	5,465
Strategic Assessment Program	2,833	3,341	3,500	3,500	3,500
Hazardous Materials Response Program	2,084	2,289	2,289	2,289	2,289
National Marine Pollution Coordination Program	1,293	1,293	1,293	922	1,079
Deep Seabed Mining Environmental Research Program	469	384	533	523	600
Environmental Research Laboratories Ocean Pollution Studies Program	958	772	772	519	519
Environmental Research Laboratories Great Lakes Pollution Studies	2,934	2,934	3,022	3,022	2,100
Sea Grant Ocean Pollution Program	3,134	3,157	3,200	3,200	3,100
National Fishery Ecology Program	5,972	5,853	3,348	3,348	3,348
Estuarine Programs Office	1,518	2,260	2,160	336	0
Marine Pollution Data Support Program	70	70	70	70	70
Coastal Ocean Program				6,400	17,400
Assessment of Damages to Natural Resources in the Marine Environment				2,500	2,500
-- Total -- National Oceanic and Atmospheric Administration	26,706	28,054	25,585	32,094	41,970
U.S. Department of Defense					
U.S. Army Corps of Engineers					
Environmental Quality Research and Development Program	1,700	1,250	975	900	1,756
Navigation Project and Environmental Operations and Maintenance	7,296	7,250	9,015	10,422	7,372
-- Total -- U.S. Army Corps of Engineers	8,996	8,500	9,990	11,322	9,128
U.S. Navy					
Environmental Protection Technology Program	1,575	1,235	720	900	600
-- Total -- U.S. Navy	1,575	1,235	720	900	600

TABLE 2. DIRECT PROGRAMS (CONTINUED)

U.S. Department of Health and Human Services					
Food and Drug Administration					
Seafood Safety and Contamination Program	4,080	4,332	4,464	4,622	4,622
-- Total -- Food and Drug Administration	4,080	4,332	4,464	4,622	4,622
National Institute of Environmental Health Sciences					
Extramural Research Program	350	3,073	3,136	3,240	3,347
-- Total -- National Institute of Environmental Health Sciences	350	3,073	3,136	3,240	3,347
U.S. Department of the Interior					
Minerals Management Service					
Headquarters and Regional Studies Programs	19,285	20,106	18,000	18,500	20,439
-- Total -- Minerals Management Service	19,285	20,106	18,000	18,500	20,439
U.S. Fish and Wildlife Service					
Research and Development Program	3,227	3,733	4,100	4,100	4,100
National Wetlands Inventory Program	2,319	1,878	1,878	2,520	3,020
-- Total -- U.S. Fish and Wildlife Service	5,546	5,611	5,978	6,620	7,120
U.S. Department of Transportation					
U.S. Coast Guard					
Marine Environmental Response Program	600	1,744	1,530	2,350	1,540
-- Total -- U.S. Coast Guard	600	1,744	1,530	2,350	1,540
U.S. Environmental Protection Agency					
EPA Marine Pollution Studies					
Marine Disposal Research Program	6,925	6,000	6,160	6,765	6,245
Energy Related Research Program	305	190	120	1,120	2,120
Water Quality Research Program	7,170	8,330	8,625	10,580	10,990
Great Lakes Research Program	5,500	10,180	8,140	10,525	9,630
Chesapeake Bay Program	925	1,425	825	1,500	1,200
National Estuary Program	7,260	5,050	8,250	10,980	15,180
Reducing Uncertainty in Risk Assessment for Ecological Systems Program			450	3,000	3,000
Environmental Monitoring and Assessment Program				2,750	5,000
-- Total -- EPA Marine Pollution Studies	28,085	31,175	32,570	47,220	53,365

TOTAL FEDERAL SPENDING FOR DIRECT PROGRAMS -----	98,609	107,100	105,471	130,339	145,602

TABLE 3. INDIRECT PROGRAMS

03/05/90

FUNDING SUMMARY FOR THE NATIONAL OCEAN POLLUTION RESEARCH, DEVELOPMENT AND MONITORING PROGRAM
PROGRAMS INDIRECTLY RELATED TO MARINE POLLUTION
FISCAL YEARS 1987-1991

	Funding in Thousands of Dollars				
	FY87 Estimate	FY88 Estimate	FY89 Estimate	FY90 Estimate	FY91 Presidential
U.S. Department of Commerce					
National Institute of Standards and Technology					
Center for Analytical Chemistry	0	0	0	0	0
-- Total -- National Institute of Standards and Technology	0	0	0	0	0
National Oceanic and Atmospheric Administration					
National Estuarine and Marine Sanctuary Program	357	452	872	705	705
Ship Support Program	2,750	2,041	1,304	1,515	1,515
-- Total -- National Oceanic and Atmospheric Administration	3,107	2,493	2,176	2,220	2,220
U.S. Department of Energy					
DOE Marine Pollution Studies					
Regional Marine Program	5,118	5,550	5,779	6,955	6,901
Physiological Ecology Program	777	545	406	0	0
-- Total -- DOE Marine Pollution Studies	5,895	6,095	6,185	6,955	6,901
U.S. Department of the Interior					
U.S. Geological Survey					
Water Resources Division Program	2,000	2,000	2,000	500	500
Geologic Division Program	583	783	2,450	450	950
-- Total -- U.S. Geological Survey	2,583	2,783	4,450	950	1,450
U.S. Environmental Protection Agency					
EPA Marine Pollution Studies					
Exploratory Research Program	540	540	540	540	540
-- Total -- EPA Marine Pollution Studies	540	540	540	540	540
U.S. National Aeronautics and Space Administration					
Office of Space Science and Applications					
Ocean Productivity Program	480	480	510	536	563
-- Total -- Office of Space Science and Applications	480	480	510	536	563
U.S. National Science Foundation					
Division of Ocean Science					
Division of Ocean Science	690	142	174	0	0
-- Total -- Division of Ocean Science	690	142	174	0	0
TOTAL FEDERAL SPENDING FOR INDIRECT PROGRAMS	13,295	12,533	14,035	11,201	11,674

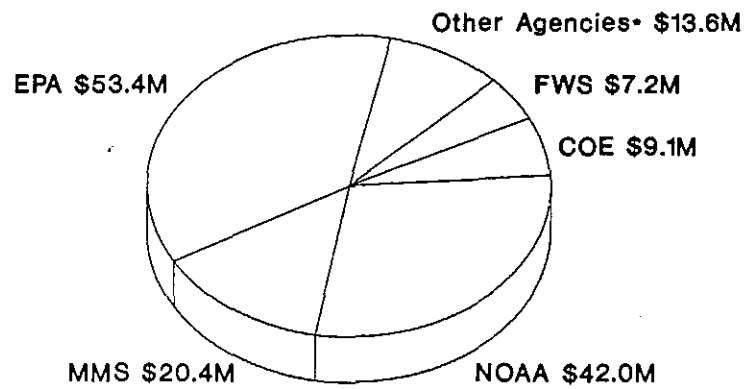
Principal Agencies Requesting Appropriations

The following agencies and departments are submitting requests for appropriations to support research, development, and monitoring programs directly related to marine pollution in FY 1991:

	<u>FY 1991 Presidential Budget</u>
Environmental Protection Agency (EPA)	\$53,365K
National Oceanic & Atmospheric Administration (NOAA)	41,970
Minerals Management Service (MMS)	20,439
Army Corps of Engineers (COE)	9,128
Fish & Wildlife Service (FWS)	7,120
Food & Drug Administration (FDA)	4,622
Department of Agriculture (USDA)	3,470
National Institute of Environmental Health Sciences	3,347
Department of Transportation (USCG)	1,540
Navy (USN)	600
Council On Environmental Quality (CEQ)	<u>1</u>
Total Requests for Direct Programs	\$145,602K

The overall Federal program is dominated by requests for appropriations to EPA (\$53.4 million) and NOAA (\$42.0 million, see Figure 1). Taken together, these two agencies account for 65% of requests for appropriations to support direct programs in FY 1991. The EPA would support a very diverse program, both in-house and extramurally, to address a broad spectrum of marine pollution and water quality issues primarily in estuaries, near-shore zones, and the Great Lakes. NOAA funds also would be used to support a diverse effort consisting of thirteen different programs including strategic assessment using existing data; studies to improve our ability to assess damages from, and respond to, accidental spills of oil and hazardous materials; research on fisheries ecology; regional studies in the Great Lakes; chemical and biological surveys; coastal and estuarine habitat research; and studies on the effects of nutrients in coastal oceans. The MMS program, which would be funded

**Figure 1. Distribution of Direct
Funding Among Agencies**



*FDA/USDA/NIEHS/USCG/USN/CEQ

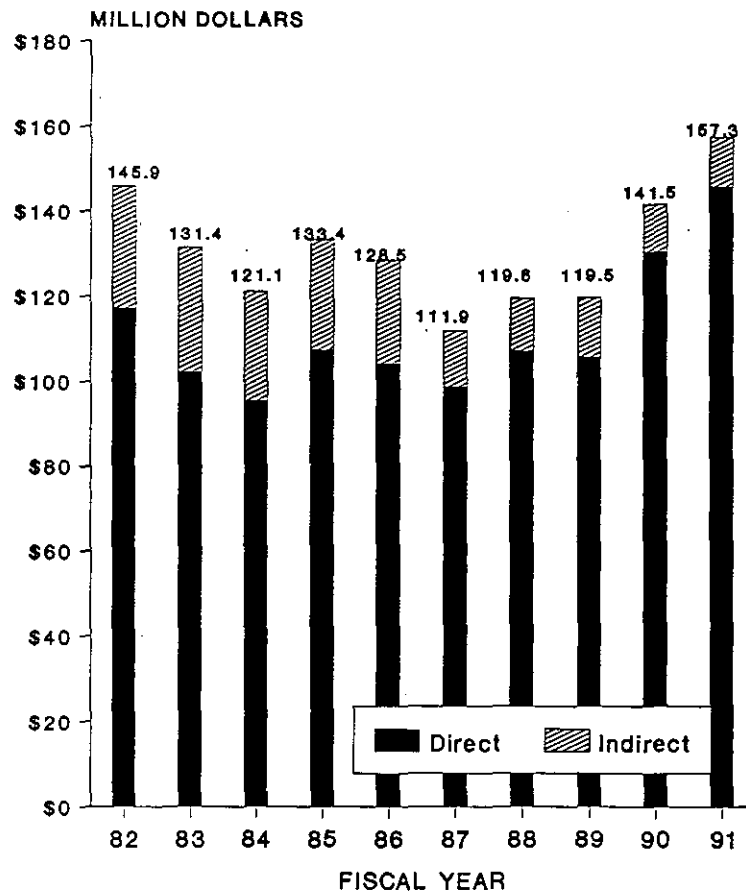
at \$20.4 million in FY 1991, would focus exclusively on studies conducted under contract to address environmental concerns associated with development of offshore oil and gas resources. The U.S. Army Corps of Engineers is requesting \$9.1 million in FY 1991, primarily for site-specific studies to support dredging and dredged material disposal projects. The Fish and Wildlife Service is requesting \$7.1 million in FY 1991 to support research on fish and wildlife issues and to continue the National Wetlands Inventory. The remaining agencies (FDA, USDA, NIEHS, USCG, USN, and CEQ) are each requesting less than \$5 million for direct programs and would represent, in combination, less than 10% of the total request for appropriations to support research, development, and monitoring programs directly related to marine pollution in FY 1991.

Trends in Total Funding

Funding levels for the total (direct plus indirect) national ocean pollution research, development, and monitoring program from FY 1982 through FY 1991 are presented in Figure 2. Trends in funding primarily represent the outcome of the budget proposal and appropriations process. A portion of the fluctuation is also due to shifts of funding for specific projects in broad, multi-purpose programs which may be pollution-related in some years, but not in others. This component of the overall trend would not reflect real changes in fiscal policy or in the total level of effort.

Total funding for ocean pollution studies in FY 1982 was \$145.9 million. From FY 1982 to FY 1984, total Federal expenditures were reduced by approximately \$25 million. Between FY 1984 and FY 1985, Federal expenditures increased by about \$12 million, and then were reduced by more than \$20 million over the next two years. Funding then increased from \$112 million in FY 1987 to over \$142 million in FY 1990. The Presidential proposal for FY 1991 represents a further strengthening of support for marine pollution studies -- in the amount of \$15.7 million. The proportion of funding devoted to direct programs has ranged from 75% to 93% of the total between FY 1982 and FY 1991, although the percentage has risen to the higher level in more recent years.

Figure 2. Trends in Funding for the National Marine Pollution Program*



*FY82-90 are estimates of actual expenditures;
FY 91 is based on the President's Budget.

3. MAJOR CHANGES PROPOSED IN THE FY 1991 PRESIDENTIAL BUDGET

This section discusses major changes in agency funding levels proposed in the Presidential Budget for FY 1991. Only changes in programs directly related to marine pollution are included. Because indirect programs typically serve other purposes as well as contributing to the understanding of marine pollution phenomena, it would be inappropriate to judge levels of funding requested for these programs using marine pollution-related criteria.

Environmental Protection Agency

The Presidential Budget requests a total of \$53.4 million for EPA to support programs directly related to marine pollution in FY 1991. This represents a \$6.1 million increase over estimated expenditures for FY 1990. The increased funding is requested for the following two programs:

-- National Estuary Program (+ \$4.2 million). The National Estuary Program was established by EPA in response to the Water Quality Act of 1987. Under the Act, EPA convenes management conferences to develop comprehensive plans for estuaries of national significance. The conferences are charged with balancing conflicting uses in an estuary while restoring or maintaining its natural character. The management conference for each estuary will identify pollution problems particular to that estuary and then devise a management plan to address these problems. The National Estuary Program added four new estuaries in FY 1990, thereby increasing the total number of estuaries in the program to sixteen. FY 1990 funding allowed the initiation of activities in these new estuaries. Additional funding requested in FY 1991 will allow the four newest programs to become fully operational and will fund the increasing level of activity in all of the programs.

-- Environmental Monitoring and Assessment Program (+ \$2.3 million). The Environmental Monitoring and Assessment Program is a new effort that is being implemented over the FY 1990-91 time frame. Quantitative evaluations will be conducted on available monitoring data for pollutant exposure in air, water and soils to identify critical information gaps. Ecological conditions in coastal waters will be observed to expand research and monitoring programs for measuring a wide spectrum of contaminants. Research will be conducted in ecosystem classification, monitoring network design and optimization, indicator methods for ecological condition, and quality assurance and data management techniques for multi-operator, multi-objective environmental

monitoring networks. This program will complement and be coordinated with the Reducing Uncertainties in Risk Assessment for Ecological Systems Program.

-- Energy Related Research Program (+\$1.0 million). Increased resources for the Energy Related Research Program will be used to address national needs that have come into focus as a result of the EXXON VALDEZ oil spill in Prince William Sound. The United States needs to be better prepared to respond to major spills of oil and other materials along our coasts and in our waterways. Increased resources will be used to determine the efficacy and long-term environmental effects of bioremediation techniques tested and applied by EPA in Prince William Sound. The balance of the resources will be used to re-establish a national oil spills research program. This program will focus on prevention of oil spills, improved cleanup procedures (i.e., thermal, biological, and chemical approaches) and environmental risk assessment related to spills.

National Ocean and Atmospheric Administration

The National Oceanic and Atmospheric Administration (NOAA) is requesting \$42.0 million to support studies directly related to marine pollution research, development, and monitoring in FY 1991. This represents a net increase of \$9.9 million over estimated expenditures in FY 1990. The President's budget proposal for NOAA includes the following two changes:

-- Coastal Ocean Program (+\$11.0 million). A total of \$6.4 million will be expended in FY 1990 to initiate marine pollution studies under NOAA's Coastal Ocean Program (COP). NOAA's budget request for FY 1991 includes a total of \$17.4 million to support more extensive research and monitoring related to marine pollution. The goal of NOAA's COP is prediction of environmental change to provide decision-makers with better, scientifically credible, options for solving coastal problems. Resources requested for FY 1991 would be used to continue and strengthen research and monitoring on status and trends in coastal ecosystems with regard to toxic contaminants, coastal and estuarine habitats, nutrient overenrichment in coastal areas, estuarine habitat alteration, and persistent marine debris.

-- Sea Grant Ocean Pollution Program (+\$3.1 million). NOAA requests funding for a refocused National Sea Grant College Program to continue to conduct priority research and technology transfer activities. The total funding requested for the Sea Grant Program is \$27.7 million, \$3.1 million of this total is to be used for marine pollution studies reported here under the Sea Grant Ocean Pollution Program. Sea Grant was originally structured by legislation to focus on the support of marine resources and environmental research at the grassroots level. Over the past decade, through a series of management and legislative changes, the program has matured, enabling the Sea Grant network to address national, as well as regional, issues. Under the Sea Grant Program, NOAA is requesting support for studies in the following marine pollution-

related areas: marine habitat, environmental processes, Great Lakes ecosystems, wetland rehabilitation, coastal productivity, and a variety of chemical studies related to toxic and nutrient contamination and global change.

Minerals Management Service

The Presidential Budget requests \$20.4 million in FY 1991 for marine pollution research managed by the Minerals Management Service (MMS) through its Outer Continental Shelf (OCS) Environmental Studies Program. This program is required to establish information needed for prediction and management of the impacts of offshore oil and gas development on the OCS and the nearshore which may be affected. The requested funding represents a net increase of \$1.9 million over estimated expenditures for FY 1990.

The purpose of the MMS program is to ensure that OCS leasing and development decisions are based on the most definitive environmental information that can be assembled. The program, funded at \$18.5 million in FY 1990, has focused on studies conducted under contract to address environmental concerns associated with development of offshore oil and gas resources. The increased funding for FY 1991 would be used to support long-term monitoring of the environmental impacts in ecosystems experiencing OCS development and production.

4. CONSISTENCY WITH NATIONAL PRIORITIES

The purpose of this section is to compare the President's requests for appropriations to support marine pollution studies in FY 1991 with national marine pollution priorities as presented in the Federal Plan for Ocean Pollution Research, Development and Monitoring. The most recent plan was submitted to the President and Congress in December 1988 as required under the National Ocean Pollution Planning Act (PL 95-273).

The FY 1991 request for appropriations to support marine pollution research programs totals \$159.8 million (direct plus indirect programs). This represents a significant increase (\$18.3 million) over estimated expenditures for FY 1990 and a major enhancement (\$40.3 million) in level of effort compared to estimates of actual expenditures for FY 1989. These increases respond to heightened environmental awareness in the U.S. and are consistent with the priority assigned by the Administration to responsible management and conservation of our natural resources.

Funding increases are requested to support studies specifically related to two of the six goals of the National Marine Pollution Program identified in the Federal Plan for Ocean Pollution Research, Development and Monitoring (1988). These are:

-- Monitoring Status of Marine Ecosystems. The Federal Plan (1988) identifies the need for stronger Federal/regional efforts to respond to Congressional mandates that call for monitoring the environmental status of marine and coastal ecosystems. Efforts are needed to: 1) develop more effective methods for monitoring, 2) strengthen Federal monitoring programs, and 3) effectively coordinate Federal efforts with ongoing regional, state, local, and private monitoring programs. Budget requests for EPA's Environmental Monitoring and Assessment Program and National Estuary Program; NOAA's Coastal Ocean Program; and FWS's National Wetlands Inventory are

especially responsive to needs in this area.

-- Habitat Loss and Modification. The Federal Plan (1988) identifies gaps in our understanding of how coastal habitats such as marshes and submerged aquatic vegetation support living marine resources and preserve water quality in coastal areas. The plan also identifies shortcomings in our capabilities to document trends in habitat loss and change. These shortcomings should be addressed in order to support the Administration's goal of "no net loss" in critical habitats. Budget requests under NOAA's Coastal Ocean Program and FWS's National Wetlands Inventory are responsive to these needs.

Events of this past year have helped identify another set of national needs related to marine pollution. The EXXON VALDEZ oil spill in March of 1989 demonstrated shortcomings in our ability to respond to major oil spills. The National Response Team ("The EXXON VALDEZ Oil Spill, A Report to the President" May, 1989) emphasized several points in an examination of the spill response efforts, including: 1) efforts to prevent oil spills should be continued and improved if necessary, 2) preparedness for spill response should be reviewed and enhanced where necessary, 3) improved capabilities to cleanup spills should be developed using mechanical, chemical, and biological means, and 4) studies of long-term environmental and health effects of major spills should be undertaken. Several programs are proposed for FY 1991 which could address these needs, including EPA's Energy Related Research Program, the USCG's Marine Environmental Response Program, and MMS's Environmental Studies Program.